

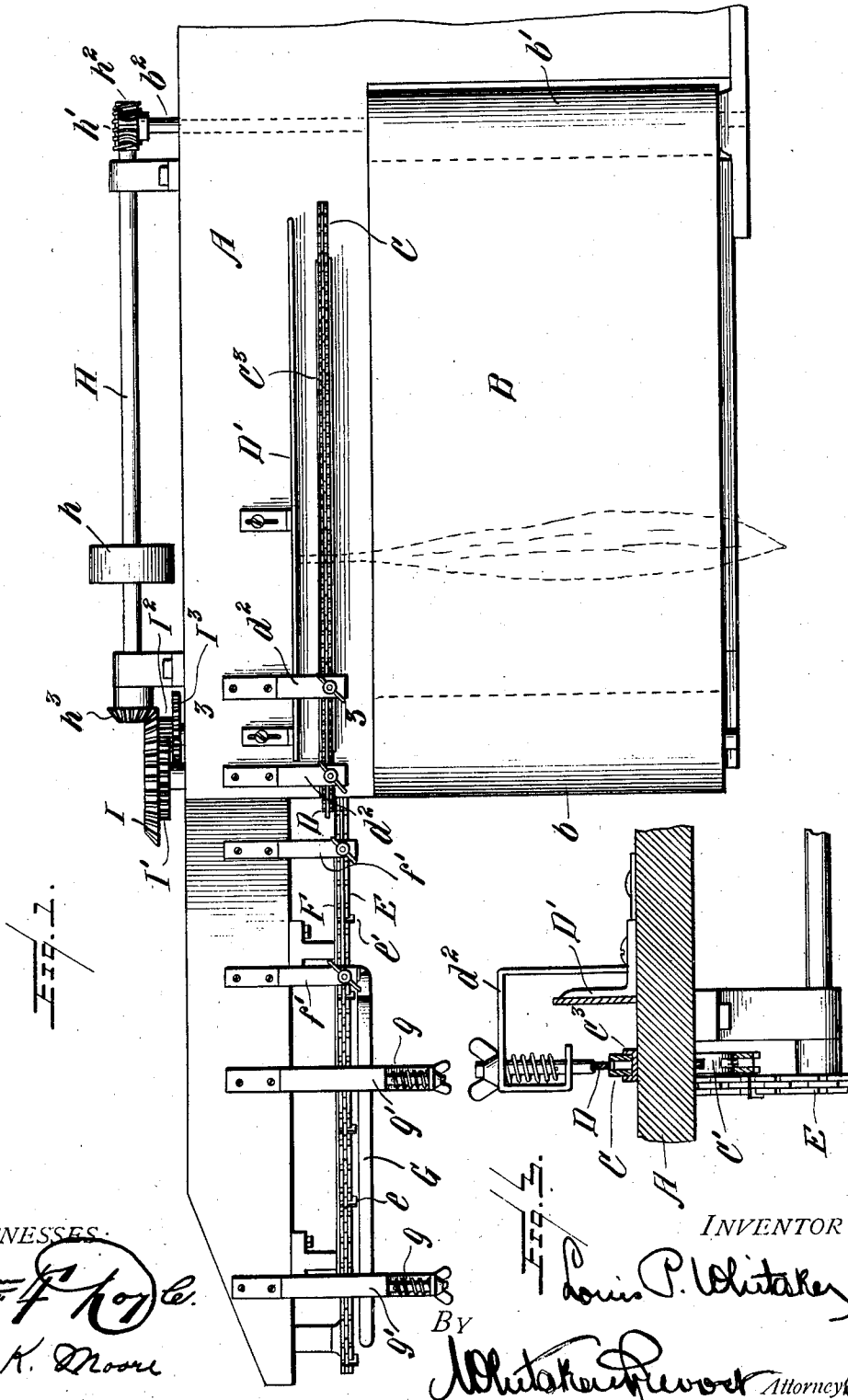
L. P. WHITAKER.
FEEDING DEVICE FOR TOBACCO LEAVES.

APPLICATION FILED FEB. 6, 1907. RENEWED FEB. 20, 1909.

937,906.

Patented Oct. 26, 1909.

3 SHEETS—SHEET 1.



WITNESSES

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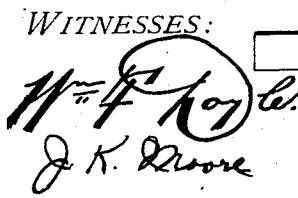
INVENTOR

Louis P. Whitaker

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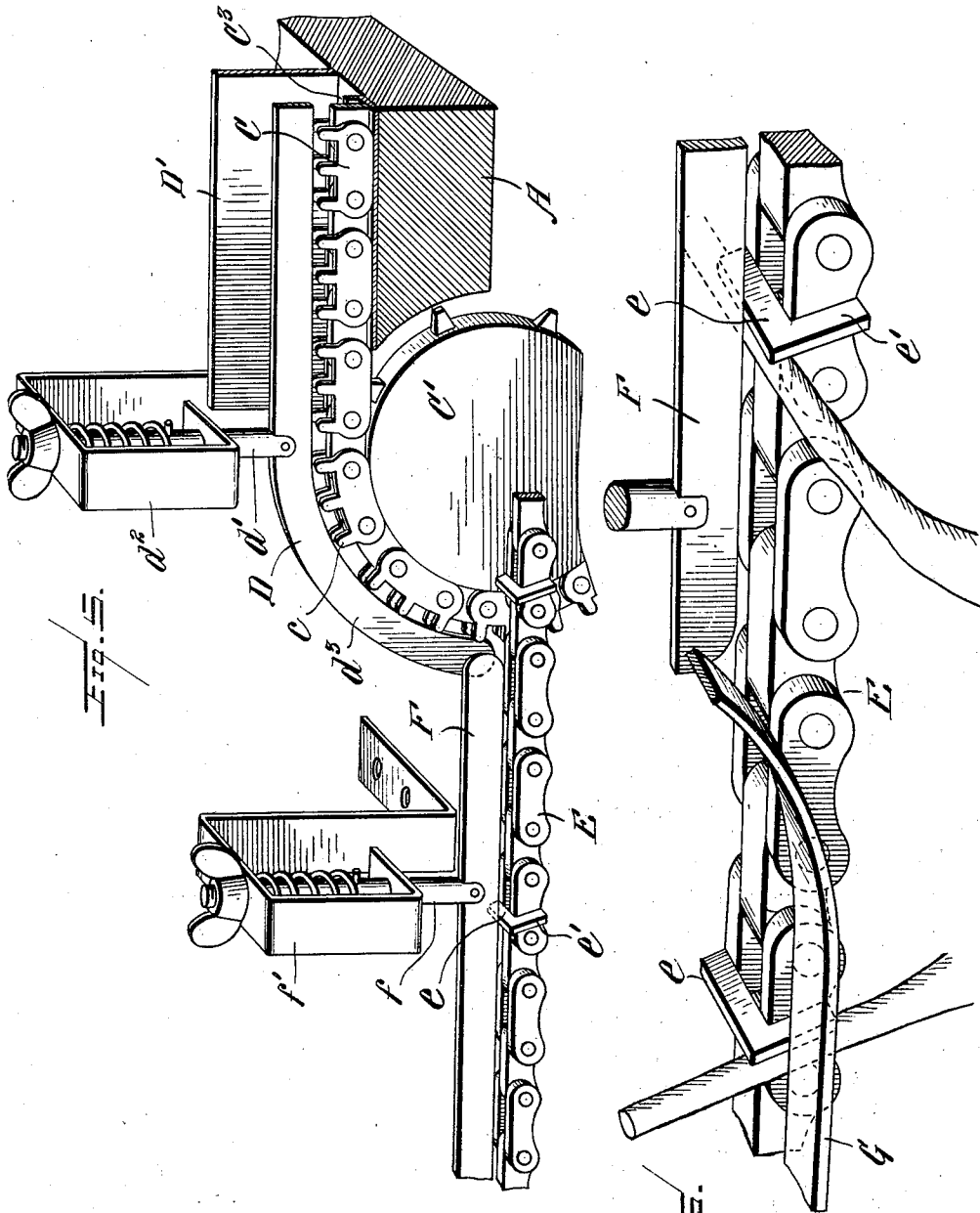
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WITNESSES:

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UNITED STATES PATENT OFFICE.

LOUIS P. WHITAKER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO THE PNEUMATIC TOBACCO STEMMER COMPANY, OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF VIRGINIA.

FEEDING DEVICE FOR TOBACCO-LEAVES.

937,906.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed February 6, 1907, Serial No. 356,014. Renewed February 20, 1909. Serial No. 479,273.

To all whom it may concern:

Be it known that I, LOUIS P. WHITAKER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Feeding Devices for Tobacco-Leaves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings which illustrate one form in which I have contemplated embodying my invention and said invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 represents a top plan view of a feeding apparatus embodying my invention. Fig. 2 is an enlarged vertical sectional view of the same. Fig. 3 is an enlarged detail sectional view on line 3—3 of Fig. 1 looking toward the left. Fig. 4 is a detail view of the gearing for the sprocket chains, taken from the rear side of the apparatus. Fig. 5 is an enlarged detail perspective view of a portion of the receiving chain, and Fig. 6 is a similar view of a portion of the delivery chain showing the means for turning the stems of the leaves from a horizontal to a vertical position.

The object of my invention is to provide a mechanism for feeding tobacco leaves to a stemming machine, or for other purposes, in which the leaves may be arranged upon a horizontal table from which they are carried, and are then turned into a substantially vertical plane, and are held at a desired angle to a vertical plane extending transversely of their line of travel, or otherwise delivered from the feeding mechanism.

In carrying out my invention I provide a horizontal table A supported in any desired manner, and provided with a longitudinally extending conveyer B of considerable breadth, passing around rollers *b b'*, the latter being the driving roller. Adjacent to the inner edge of the conveyer and parallel thereto I arrange a sprocket chain C or other endless carrying device, provided with a plurality of teeth or projections *c*, the spaces between which are of a size suitable to re-

ceive the stem portion or butt portion of a tobacco leaf, as shown best in Fig. 5. These teeth are arranged continuously throughout the length of the chain or other flexible connection, and may be arranged in a single row or on both sides of the chain as shown in the drawing. The chain C is mounted on sprocket wheels *C'*, *C''*, mounted in suitable bearings in the table and the upper lap of the chain rests preferably in a longitudinal guide *C'''* secured on the top of the table, or slightly below the surface, as desired, it being only necessary that the teeth *c* should extend above the surface of the table. The chain C is driven at exactly the speed of the conveyer B, and in feeding tobacco leaves, they are laid upon the conveyer transversely with their butt ends (the ends which grow adjacent to the stalk) lying between adjacent teeth of the sprocket chain C and projecting beyond said chain, as indicated in Fig. 1, so that the chain carries the butt of the leaf and the conveyer carries the body or leafy part at the same rate of speed. A head guide *D'* is arranged on the side of the chain C opposite the conveyer B, and is adjustably secured to the table, so as to regulate the position of the leaves, and in feeding care is to be exercised in having the butts of all leaves in engagement with said head guide.

The movement of the conveyer B and chain C is very slow so as to give ample time for the operator to lay the leaves upon the belt and place a butt between each pair of teeth of the chain C. In order to prevent the accidental displacement of the leaves after they are once positioned, I provide a vertically and longitudinally disposed guide above the chain C, from the delivery end thereof as far as desired toward the other end. This guide is shown at D and consists of a piece of thin metal placed on edge and having its lower edge preferably in the plane of the tops of the teeth *c'* as shown in Fig. 3. Where the chain is provided with teeth on both edges, as here shown, this guide is preferably located between the two sets of teeth. The guide D does not ordinarily touch any of the leaves of tobacco carried by the chain, but it prevents the possibility of the tobacco leaves from getting out of the recess between two adjacent teeth, after they have passed be-

neath said guide. The guide D may be constructed to engage the stem portions of the leaves directly as they lie in the chain C, but I prefer that it should not touch them as the operator or feeder can push up any leaf or leaves, which may not be in engagement with the head guide even after the leaves have passed beneath the guide D. The guide D is preferably mounted so as to be capable of yielding slightly away from the chain, to prevent binding, in case such yielding is necessary and the inner end of the guide is bent upwardly as at d , to permit the leaves to pass beneath without catching. In the present instance, I have shown the guide D supported by spring pressed rods d' d' each of which is mounted in guiding apertures in a bracket d^2 , secured to the table, said rods being threaded at their upper or outer ends and provided with wing nuts by which they may be adjusted, but said guide may be supported in any other desired way. The delivery end of guide D is also curved so as to extend a quarter way around the sprocket wheel C' , as shown at d^3 so as to retain the leaves until the teeth c arrive in a horizontal position, when they are taken, one at a time from chain C, by a delivery chain E and separated to a distance of several inches, and separately delivered to a stemming machine. The delivery chain E is mounted on a driving sprocket E' , mounted below the sprocket C' , and an outer sprocket E^2 of small diameter, mounted on an extension of the table. The chain E is provided at intervals with a tooth e on its upper face, which forms a continuation of a lateral tooth e' arranged on the side of the chain, and preferably extends at an angle downwardly, and rearwardly, the angle of tooth e' corresponding to the angle at which the tobacco leaves are to be delivered, after they are turned from a horizontal into a substantially vertical position.

The speed of the sprocket chains C and E is timed so that the sprocket chain C moves the distance between two adjacent teeth c c while the chain E moves the much greater distance, between two teeth e , e , so that each of the leaves carried by chain C is delivered to a tooth e of chain E at the instant that the leaf escapes the lower end of guide D, and the tooth e at once carries the leaf toward the delivery end of chain E and beneath a similar guide F arranged above the chain E and supported similarly to guide D by means of spring pressed rods f f and brackets f' f' , but the guide F is arranged to press firmly upon the stem or butt portion of the leaf as it is carried along by the tooth e .

At a certain point above chain E the guide F is stopped and at substantially the same point a lateral guide G is arranged ad-

jacent to the lateral teeth e' , and supported yieldingly, as by spring pressed rods g g and brackets g' g' . The end of guide G adjacent to guide F is bent upwardly so as to engage the leaves on the upper side and at one side of the chain E thus bending them down at the point of contact and throwing them quickly into a substantially vertical position, in front of the lateral teeth e' . The forward movement of the chain and the friction of the lateral guide G causes each leaf to aline itself with the forward inclined face of the tooth e' with which it is in contact, as shown in the drawings, thus presenting each leaf to the stemming machine at the desired angle, determined by the angle of the tooth e' . The leaves will also extend above the chain E a uniform distance determined by the adjustment of the head guide, as will be clearly understood, so that the butt ends of the leaves may be properly gripped by the feeding mechanism of the tobacco stemming machine.

It will be understood that at the time the leaves are transferred from the receiving carrier C to the delivery carrier E they will fall off of the conveyer B, and hang downward thereby facilitating the turning of the leaves into vertical position when they engage the upturned end of the guide G.

The various moving parts previously described, may be driven in any desired way. In the drawings I have shown one way in which they may be driven. H indicates a driving shaft mounted at the rear of the table A and provided with a driving pulley h . The drive shaft H is connected by spiral gears h' h^2 with the shaft b^2 of the roller b' , so as to drive the conveyer B.

The shaft of sprocket wheel C' is provided with a large bevel wheel I which meshes with a bevel pinion h^3 on the drive shaft and thus drives the sprocket chain C at the required speed, that is the same speed as the conveyer B. The shaft of sprocket wheel C' is also provided with a gear wheel I' which meshes with pinion I^2 on a stud i , and said pinion has connected with it a gear wheel I^3 which engages a pinion I^4 on the shaft of sprocket wheel E' of the delivery carrier, thus driving the latter at the high speed required and timing the two chains C and E so that each will move the distance between two adjacent teeth in the same interval of time and thus insure the accurate transfer of the leaves from one to the other.

This feeding mechanism is especially designed for feeding tobacco leaves to stemming machines of the type shown in my former patent No. 741,863 dated Oct. 20, 1903, or in Letters Patent No. 765,585 granted to L. D. Lorentz, J. C. Buchanan and A. O. Travis dated July 19, 1904, but it may be used for other purposes for which it may be found desirable or convenient.

What I claim and desire to secure by Letters Patent is:—

1. In a feeding device for tobacco leaves, the combination with an endless carrier, for engaging portions of the leaves adjacent to their butt ends, and provided on two sides disposed at an angle to each other, with carrying projections, of guides for holding the leaves in engagement with said projections, substantially as described.

2. In a feeding device for tobacco leaves, the combination with an endless carrier for engaging portions of the leaves adjacent to their butt ends, and provided on two sides disposed at an angle to each other, with carrying projections, of guides for holding the leaves in engagement with said projections, and means for turning the leaves from a position in engagement with a projection on one of said sides, into a position in engagement with a projection on the other of said sides, substantially as described.

3. In a feeding device for tobacco leaves, the combination with an endless carrier, provided on its outer face, with teeth arranged at intervals, and having on one of its lateral faces teeth corresponding with said first named teeth, of a top guide for engaging the leaves and holding them in engagement with said outer teeth, and a lateral guide arranged adjacent to said lateral teeth and extending from a point adjacent to the end of said top guide to the delivery point for said leaves, and a part for engaging said leaves adjacent to the end of said top guide and turning them into a substantially vertical position and into engagement with said lateral teeth, substantially as described.

4. In a feeding device for tobacco leaves, the combination with an endless carrier, provided on its outer face, with teeth arranged at intervals, and having on one of its lateral faces teeth corresponding with said first named teeth, of a top guide for engaging the leaves and holding them in engagement with said outer teeth, and a lateral guide arranged adjacent to said lateral teeth and extending from a point adjacent to the end of said top guide to the delivery point for said leaves, a part for engaging said leaves adjacent to the end of said top guide and turning them into a substantially vertical position and into engagement with said lateral teeth, and means for yieldingly supporting said guides, substantially as described.

5. In a feeding device for tobacco leaves, the combination with an endless delivery carrier, provided on two faces, at an angle to each other, with teeth, a guide cooperating with the teeth on each of said faces, and means for turning the leaves at a determined point from a position in engagement with a tooth of one face, into a position in engagement with a tooth of another face, and mechanism for delivering the leaves

singly to said delivery carrier, substantially as described.

6. In a feeding device for tobacco leaves, the combination, with an endless delivery carrier, provided on two faces, at an angle to each other, with teeth, a guide cooperating with the teeth on each of said faces, and means for turning the leaves at a determined point from a position in engagement with a tooth of one face, into a position in engagement with a tooth of another face, and a device for separating said leaves, and delivering them separately to said delivery carrier, substantially as described.

7. In a feeding device for tobacco leaves, the combination with an endless delivery carrier, provided on two faces, at an angle to each other, with teeth, a guide cooperating with the teeth on each of said faces, and means for turning the leaves at a determined point from a position in engagement with a tooth of one face, into a position in engagement with a tooth of another face, a receiving carrier provided with projections between which the leaves are placed and separated, and operative means for delivering said leaves from the receiving carrier to the delivery carrier, substantially as described.

8. In a feeding device for tobacco leaves, the combination with an endless delivery carrier, provided on two faces, at an angle to each other, with teeth, a guide cooperating with the teeth on each of said faces, and means for turning the leaves at a determined point from a position in engagement with a tooth of one face, into a position in engagement with a tooth of another face, and a receiving endless carrier provided with projections adapted to receive single leaves between them, and having a part thereof in close relation to said delivery carrier to permit the latter to take the leaves therefrom, means for driving said receiving carrier at slower speed than the delivery carrier, and a guide adjacent to the teeth of said receiving carrier to prevent the accidental escape of the leaves therefrom, substantially as described.

9. In a feeding device for tobacco leaves, the combination with a horizontally disposed endless carrier, constructed to engage the stem portions of the leaves adjacent to their butt ends, and provided with projections spaced to receive a single leaf between them, of a horizontal delivering device extending in a plane parallel to said endless carrier, and arranged to receive the leaves from said carrier, and carry them in the same direction as the carrier, said delivering device being provided with means for turning said leaves while in engagement therewith from a horizontal into a vertical plane, and delivering them, and means for operating said delivering device to cause it

to carry the leaves at greater speed than said carrier, substantially as described.

10. In a feeding device for tobacco leaves, the combination with a horizontally disposed sprocket chain provided on one of its horizontal faces with a plurality of projections, the space between each of said projections and adjacent projections being substantially equal to the width of a single stem of a tobacco leaf, whereby said leaves may be uniformly spaced by inserting them between adjacent projections and a horizontal delivering device arranged in a plane parallel to the said sprocket chain, and having a portion located adjacent to and at one side of the said chain to receive the stem portions of the leaves therefrom, and carrying them in the same direction as said chain, said delivering device being provided with means for turning the leaves from a horizontal into a vertical plane, and operating means for said delivering device for causing it to carry the leaves at greater speed than said sprocket chain, substantially as described.

11. In a feeding device for tobacco leaves, the combination with an endless receiving carrier provided with a series of projections spaced to receive a single leaf between them, a guide for preventing said leaves from accidentally becoming disengaged from said carrier, and a delivery endless conveyer provided at intervals with teeth on its upper face and corresponding teeth on a lateral face, for engaging the tobacco leaves, guides for holding said leaves in engagement with said top and lateral teeth, and means for turning the leaves from a position in engagement with one of said upper teeth, into a position in engagement with one of said lateral teeth, substantially as described.

12. In a feeding device for tobacco leaves, the combination with an endless carrier provided with a series of separated teeth on its upper face, and a series of lateral teeth disposed angularly to a vertical transverse plane, and corresponding at their upper ends with the teeth on said upper face, and means for turning the leaves from a position in engagement with an upper face tooth of said carrier, into a position in engagement with one of said lateral teeth, and guides for holding said leaves in engagement with said upper and lateral teeth, substantially as described.

13. In a feeding device for tobacco leaves, the combination with a feeding table provided with a conveyer, of a narrow receiving endless carrier, located adjacent to one edge of said conveyer and provided with projections on its upper face having spaces between the same to receive portions of sin-

gle leaves, means for slowly moving said carrier and conveyer at the same speed, a delivery endless carrier provided with teeth on its upper face and corresponding teeth on a lateral face, arranged to receive the leaves from said receiving carrier, and means for turning said leaves from a position in engagement with a tooth on the upper face of said delivery carrier, into a position in engagement with one of said lateral teeth, substantially as described.

14. In a feeding device for tobacco leaves, the combination with a feeding table provided with a conveyer, of a narrow receiving endless carrier, located adjacent to one edge of said conveyer and provided with projections on its upper face having spaces between the same to receive portions of single leaves, means for slowly moving said carrier and conveyer at the same speed, a delivery endless carrier, provided with teeth on its upper face and corresponding teeth on a lateral face, arranged to receive the leaves from said receiving carrier, and means for turning said leaves from a position in engagement with a tooth on the upper face of said delivery carrier, into a position in engagement with one of said lateral teeth, a guide located above a portion of said receiving carrier and extending to a point adjacent to said delivery carrier, a guide adjacent to said upper teeth of the delivery carrier, and a guide adjacent to said lateral teeth of the delivery carrier, substantially as described.

15. In a feeding device for tobacco leaves, the combination with a feeding table provided with a conveyer, of a narrow receiving endless carrier, located adjacent to one edge of said conveyer and provided with projections on its upper face having spaces between the same to receive portions of single leaves, means for slowly moving said carrier and conveyer at the same speed, a delivery endless carrier provided with teeth on its upper face and corresponding teeth on a lateral face, arranged to receive the leaves from said receiving carrier, and means for turning said leaves from a position in engagement with a tooth on the upper face of said delivery carrier, into a position in engagement with one of said lateral teeth, and a head guide mounted on said table substantially parallel to said receiving carrier, and on the side thereof opposite said conveyer, substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses.

LOUIS P. WHITAKER.

Witnesses:

F. H. HUBBARD,
J. K. MOORE.